AMENDMENTS TO THE SPECIFICATION

The paragraph beginning on line 11 of page 22 of the PCT publication (the paragraph that follows immediately after equation (10)) is replaced by the following replacement paragraph. The change occurs in the first sentence and is a correction of obvious error as explained in the Remarks.

Replacement Paragraph

[0065] Note that equation ~~(1)~~(10) is the matrix equivalent of equation (4) discussed above. With reference to Fig. 4, the vibrator motions are recorded, step **52**, and vibrator signatures computed, step **56**, in a manner analogous to that described above in association with Fig. 2. In Fig. 4, step **58**, the impulse response is constructed and the matrix of vibrator signatures are inverted **60** according to the procedure described above in association with Fig. 2, steps **5**, **6**, and **7**. That impulse response is used in equation (10) to determine the deconvolution filter ***F***, step **62**, and to thereafter separate and deconvolve the recorded seismic data, step **64**. It will be understood to those skilled in the art that the iteration step of Fig. 1, step **9**, which is not depicted in Fig. 4, may be included in multi-vibrator embodiments of the present invention, as desired or necessary. If there are more sweeps than vibrators, the multi-vibrator problem is overdetermined, and a solution must be determined by a least squares analysis. The normal equations are

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$$\begin{aligned} \mathbf{S}^{*}\mathbf{S}\vec{E} &= \mathbf{S}^{*}\vec{D} \\ \vec{E} &= \left(\mathbf{S}^{*}\mathbf{S}\right)^{-1}\mathbf{S}^{*}\vec{D} \end{aligned} \qquad (11)$$

where S^{*} is the conjugate transpose of the vibrator signature matrix S. Equations 11 involve a prior art method that follows the disclosure of Sallas et al. in U.S. Patent No. 5,721,710. According to the present invention however, it is preferable to use a deconvolution to remove the vibrator signature S_{ij} and replace it with an impulse response I. In this embodiment the deconvolution filter F becomes

$$\mathbf{F} = \left(\mathbf{S}^{*}\mathbf{S}\right)^{-1}\left(\mathbf{S}^{*}I\right) \qquad (12)$$